

What is claimed is:

1. A switching power supply apparatus for supplying power from an input voltage source to one output terminal for generating an output voltage, said apparatus comprising:

a transformer, isolating said output terminal from said input voltage source, said transformer having a first winding and a second winding;

a first switching element connecting with said first winding;

a CLK signal generator for generating a CLK signal to switch said first switching element according said CLK signal;

a second switching element connecting with said second winding; and

a control unit for receiving said output voltage to generate a switching signal to switch said second switching element, wherein said switching signal is synchronous with the CLK signal.

2. The switching power supply apparatus according to claim 1, wherein said switching power supply apparatus is designed as a Flyback-type, Forward-type, Push-pull-type, Half-bridge-type or Full-bridge-type.

3. The switching power supply apparatus according to claim 1, wherein said control unit further comprises a comparator and a logic circuit.

4. The switching power supply apparatus according to claim 3, wherein said comparator is used to compare said output voltage with a constant

reference voltage.

5 5. The switching power supply apparatus according to claim 3, wherein said logic circuit is used to output a switching signal to switch said second switching element according to a comparison result.

10 6. The switching power supply apparatus according to claim 3, wherein when said output voltage is larger than said reference voltage, said control unit controls said second switching element to cut off an electrical connection between said second winding and said output terminal.

15 7. A switching power supply apparatus for supplying power from an input voltage source to a plurality output terminals for generating a plurality of output voltages, said apparatus comprising:
a transformer, isolating said output terminals from said input voltage source, said transformer having a first winding and a plurality of second windings;
a first switching element connecting with said first winding;
a CLK signal generator for generating a CLK signal to switch said first
20 switching element according said CLK signal;
a plurality of second switching elements for connecting with said second windings, wherein each second switching element connects to one corresponding second winding; and
a plurality of control units, wherein each control unit receives a
25 corresponding output voltage to generate a switching signal to switch

corresponding second switching element, wherein said switching signal is synchronous with the CLK signal.

8. The switching power supply apparatus according to claim 7,
5 wherein said switching power supply apparatus is designed as a Flyback-type, Forward-type, Push-pull-type, Half-bridge-type or Full-bridge-type.

9. The switching power supply apparatus according to claim 8, wherein
10 each control unit further comprises a comparator and a logic circuit.

10. The switching power supply apparatus according to claim 9, wherein
said comparator is used to compare said output voltage with a constant
reference voltage.

15 11. The switching power supply apparatus according to claim 9, wherein
said logic circuit is used to output a switching signal to switch said second
switching element according to a comparison result.

12. The switching power supply apparatus according to claim 9, wherein
20 when said output voltage is larger than said reference voltage, said control unit
controls said second switching element to cut off an electrical connection
between said second winding and said output terminal.

13. A switching power supply control method, said switching power

supply comprises a transformer having a first winding and a second winding for transferring an input voltage to an output voltage, wherein an energy stored in said first winding is switched according to a CLK signal, said method comprising:

- 5 receiving said output voltage to generate a switching signal, wherein said switching signal is synchronous with the CLK signal; and
- switching an energy stored in said second winding according to said switching signal.

10 14. The switching power supply control method according to claim 13, wherein said switching power supply apparatus is designed as a Flyback-type, Forward-type, Push-pull-type, Half-bridge-type or Full-bridge-type.

15 15. The switching power supply control method according to claim 13, wherein receiving said output voltage to generate a switching signal further comprises comparing said output voltage with a constant reference voltage.

20 16. The switching power supply control method according to claim 15, wherein when said output voltage is larger than said reference voltage, said switching signal stops said second winding from outputting power.